

REMARKS/ARGUMENTS

These remarks are submitted in response to the Final Office Action of December 9, 2009 (Office Action). The amendments are supported by the specification and drawings. It is believed that no new matter has been added. Authorization is provided to charge any deficiencies to deposit account 50-5199.

Claims 1, 7-11, and 24-25 were rejected under 35 U.S.C. 102(e), as being anticipated by U.S. Patent No. 6,404,614 to Zhu *et al.* Claims 1, 3, 7, 11 and 24-25 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,737,179 to Sengupta. Claims 1, 3, 7, 11 and 24-25 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,514,895 to Chiu.

The Office Action has reinstated these previous rejections, and asserted that the subject matter added to the claims in the previous amendment was claimed in claim 9 of the '895 patent. The Office Action further asserts that the affidavit "explicitly stated that subject matter not claimed in the '614, '179 and '895 references was derived by the inventor Sengupta." It is respectfully pointed out that claims 1, 7-11 and 24-25, as well as newly added claims 32-42, include the subject matter addressed in the Sengupta affidavit of mixing particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials. Claim 10 of the '895 patent describes the metal silicate particles having average particle sizes of about 0.1 to about 5 microns, but this claimed subject matter is based on the mixing of dielectric particles with "at least one metal silicate material."

The '895 patent provides an example of the claimed "at least one metal silicate material" which is Mg_2SiO_4 as follows:

TABLE 1

Low Frequency Data for $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ with varying Weight Percent Magnesium Silicate							
Weight Percent Mg_2SiO_4	Dielectric Constant (1 MHz)	Loss (1 MHz)	Tuning 2V/micron	Tuning 4V/micron	Tuning 6V/micron	Tuning 8V/micron	Curie Temp. ° C.
<u>$\text{Ba}_{50}\text{Sr}_{50}\text{TiO}_3$</u>							
50	106.4	0.0010	8.4	19.2	27.1	32.9	-50
<u>$\text{Ba}_{55}\text{Sr}_{45}\text{TiO}_3$</u>							
10	1508.69	0.00026	18.0				
20	857.86	0.000313	18				
30	493.96	0.000174	15	32.0	43.2	50.8	-30
40	277.38	0.000403	16	32.6	42.9	50.0	
50	79.82	0.000512	9.5	18.7	23.8	28.5	
60	64.79	0.000338	7.3	14.4	19.5	23.4	
70	14.4	0.0017	0.13				
<u>$\text{Ba}_{60}\text{Sr}_{40}\text{TiO}_3$</u>							
30	559	0.0012	24.2	43.8	55.2	61.3	-15
35	478	0.0011	27.8	46.3	56.0	62.2	-15

The present application provides support for its claimed subject matter of at least two metal oxides at least in the following table where the two metal oxides are Mg_2SiO_4 and MgO :

TABLE 1

Low and High Frequency Data of BSTO with varying Amounts Mg_2SiO_4 and MgO										
BSTO/ Mg_2SiO_4 / MgO	Dielectric Constant (1 MHz)	Dielectric Loss (1 MHz)	Dielectric Constant (10 GHz)	Dielectric Loss (10 GHz)	Dielectric Constant (24 GHz)	Dielectric Loss (24 GHz)	Tunability (2 V/um) (%)	Tunability (4 V/um) (%)	Tunability (6 V/um) (%)	Tunability (8 V/um) (%)
35.1005	503.2	0.0011			396.2	0.0132	4.2	8.8	12.2	
35.2005	374.1	0.0010			300.6	0.0187	3.6	8.7	13.2	
35.3005	245.9	0.0008			213.0	0.0103	3.03	9.1		
40.2005	427.4	0.00065			344.0	0.0148	6.0	13.1	18.5	
40.3005	252.9	0.0008			250.0	0.0145	6.5	14.1	20.0	
40.6005	43.7	0.004			40.2	0.0153	3.4	7.8	11.7	15.2
45.2005	518.9	0.001			425.8	0.0206	8.1	17.2	23.9	
45.5001	129.7	0.0013	107.16	0.0155	106.2	0.0224	7.3	17.7	25.3	31.3
45.5002	134.4	0.0015			114.4	0.0191	9.3	18.2	25.0	30.9
45.5003	133.1	0.0033			129.6	0.0201	7.9	16.6	23.7	29.4
45.5005	111.8	0.00286			100.6	0.019	9.5	17.5	23.8	29.3
45.5501	96.0	0.0013	80.99	0.0118	78.4	0.0232	6.7	16.2	23.7	29.3
45.5502	99.0	0.0024			68.2	0.0266	7.8	15.5	22.1	27.9
45.5503	90.6	0.0021			77.7	0.0178	7.0	15.8	23.0	29.1
45.5505	101.9	0.0023			71.5	0.0162	10.0	18.1	24.8	30.2
50.2005	637.5	0.0008			532.8	0.0359	12.0	24.2	33.0	
50.3005	460.6	0.0008			373.3	0.0357	13.5	26.9	36.0	
50.4005	268.8	0.0006			243.1	0.0353	13.4	25.7	34.3	

The Sengupta affidavit that was previously submitted stated that “any invention disclosed but not claimed in the aforementioned cited references was derived by Affiant.” It is believed that none of the ‘614, ‘179 and ‘895 references claim the subject matter of mixing particles of at least one electronically tunable dielectric material and a total of from about 1 to about 80 weight percent of particles of at least two additional metal oxide materials.

Based on the foregoing including the Sengupta Affidavit which has already been made of record, it is respectfully requested that the rejections should be withdrawn.

CONCLUSION

It is believed that this application is in condition for allowance, which action is respectfully requested. It is requested that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

/Andrew Gust/

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